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10/540,451	12/15/2005	Minoru Sugiyama	3163-051952	1276

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EXAMINER	
BAREFORD, KATHERINE A	
ART UNIT	PAPER NUMBER
1715	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,451	SUGIYAMA ET AL.	
	Examiner	Art Unit	
	Katherine A. Bareford	1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,13,14 and 16-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,13,14 and 16-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 3, 2010 has been entered.

The amendment filed with the RCE submission of August 3, 2010 has been received and entered. With the entry of the amendment, claims 9-12 and 15 are canceled, and claims 1-8, 13, 14 and 16-23 are pending for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 22 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22, line 2 and claim 23, line 2, "the laminate is used as an actuator element" is confusing as to whether applicant means that the laminate is formed into an

actuator element, or whether applicant is actually using the actuator element in a process. If applicant is actually claiming using the actuator element in a process, the claim raises issues as to what is intended under 35 USC 112/101 grounds, as discussed in MPEP 2173.05(q), because this process of use has no steps set forth involved in such a process.

The other dependent claims do not cure the defects of the claims from which they depend.

4. In the amendment of August 3, 2010, applicant argues that the claim is directed to an actuator element, defined as being formed by according to a certain process. The Examiner has reviewed this argument, however, the rejection remains. Claims 22 and 23 are process claims. Thus the claims appear to be directed either to making a laminate actuator element, or making and further using the laminate element in a process. If the claim is directed to the laminate itself, it would be a product claim. The claim wording is not clear that a "product by process" claim is provided, such as "A product produced by the method of claim 1 . . ." and therefore, the Examiner has not examined the claim as a product claim. If applicant is actually intending a product claim, the claim language needs to be clarified, and further the Examiner would consider making a restriction between product and process claims in such a case.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-5, 7, 8, 13 and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fedkiw, Jr (US 4959132) in view of the admitted state of the prior art.

Claims 1, 2, 3, 5, 7, 8: Fedkiw teaches a method for electroless plating (where plating occurs by reducing a metal complex to form a metal film). Column 2, lines 15-40. The substrate is a polymer electrolyte, and can be in the form of a solid polymer membrane of a perfluorosulfonic acid polymer such as NAFION. Column 4, lines 25-40. Fedkiw provides that the polymer electrolyte is desirably swelled using a co-solvent in conjunction with an ionic salt of the selected metal to form the film to thereby

increase the loading level and lower diffusional resistance therein (and thus can be described as swelled with (1) a solution containing a good solvent and (2) a solution containing salt). Column 2, lines 49-60. Fedkiw provides forming the metal film by the electroless process of impregnating a metal salt of the desired metal such as platinum in a cosolvent such as methanol/water (thus an aqueous solution) and adsorbing the metal salt (metal complex) into the polymer electrolyte. Column 4, lines 35-50. Then, the polymer electrolyte is contacted with a reductant solution to reduce the metal complex to the metal(0) state and form the metal film on the polymer electrolyte (thus forming a laminate as claimed). Column 2, lines 30-40, column 4, lines 50-65.

Fedkiw teaches all the features of these claims except (1) that the swelling step is pretreatment before an electroless plating and (2) that the swelling is at least 130% of the thickness of the polymer electrolyte. However, the admitted state of the prior art teaches that it is well known to provide a electroless metal plating on a polymer electrolyte by a process of immersing the polymer electrolyte in water to swell it, adsorbing a metal complex such as a platinum complex into the polymer electrolyte in a aqueous solution, and reducing the metal complex with a reducing agent – where the adsorption/reduction steps are repeated six or more times to provide sufficient amounts of metal on the polymer electrolyte. See pages 2-3 of the present specification. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) modify Fedkiw to perform multiple adsorption/reduction cycles on the polymer electrolyte to provide a desired amount of metal on the polymer

electrolyte as suggested by the admitted state of the prior art is conventional in the practice of adsorption/reduction electroless plating. Since any adsorption/reduction cycle can be considered an electroless plating step, the first adsorption/reduction cycle of Fedkiw using the swelling with solvent/salt can be considered a pretreatment to the later adsorption/reduction cycles and therefore meets the requirements of the claims of providing a swelling pretreatment with solvent and/or salt. (2) As to the amount of swelling from the solvent/salt solution, it would have been obvious to one of ordinary skill in the art to perform routine experimentation to optimize the amount of swelling done with the solvent/salt solution of Fedkiw, as Fedkiw teaches to use polymer material (NAFION) and solvent (methanol) described by applicant as achieving the desired swelling, and also indicates swelling is to increase loading level (column 2, lines 50-55) and solution concentration and time of immersion, among other factors, are to be controlled to achieve desired loading (column 4, lines 40-50), indicating swelling would be a result effective variable to be controlled with solution control to optimize loading, and "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 4, 13: As Fedkiw teaches that the same polymer (NAFION) electrolyte and same solvent (methanol) (column 4, lines 30-50) can be used as described by applicant, the Examiner understands that the methanol use described would inherently provide reducing the degree of crystallization as claimed. Where the claimed and prior

art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Claims 16-19: Fedkiw provides that the polymer electrolyte would be an ion-exchange resin (note the ion exchange process). Column 4, lines 25-50.

Claims 20-21: Fedkiw teaches that the "good solvent" of methanol can be used. Column 4, lines 45-50 (CH_3OH = methanol).

Claims 22-23: the admitted state of the prior art teaches the conventional use of a laminate plated polymer electrolyte as an actuator, which would be used as such as a drying part for a catheter. See pages 1-2 of the specification.

8. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fedkiw in view of the admitted state of the prior art as applied to claims 1-5, 7, 8, 13 and 16-23 above, and further in view of Burch (US 5024858).

Fedkiw in view of the admitted state of the prior art teaches all the features of these claims except the solvent being a mixed solution of a basic salt and methanol. Fedkiw does teach that the polymer electrolyte can be an ion exchange resin and that the solution can include methanol. Column 4, lines 25-50 (note the material of the substrate).

However, Burch teaches that it is well known, when treating polymers with adsorption/reduction processes (column 4, lines 40-55) that the polymers can be swelled by using a combination of both a solvent and a base in the form of a basic salt (see column 4, line 55 through column 5, line 25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Fedkiw in view of the admitted state of the prior art to further provide a basic salt in the metal salt/methanol/water solution as suggested by Burch to increase swelling of the polymer, as Fedkiw in view of the admitted state of the prior art provides swelling of the polymer using a solvent solution and Burch teaches that desirable swelling can also be provided by further adding basic salts to a solvent solution.

9. Claims 1-8, 13, 14 and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art in view of Ventura et al (US 5731104) and Sopchak et al (US 4820553).

Claims 1-3, 5, 7, 8, 20- 23: The admitted state of the prior art, at pages 2-4 of the specification, provides that it is well known to provide an actuator made of a laminate composed of a polymer electrolyte and metal electrodes bonded to the surface of the polymer electrolyte. To provide the metal electrodes, it is known to electrolessly plate the metal on the polymer electrolyte, including using a process to surface roughen the polymer electrolyte, then immerse in water to swell, then a metal complex is adsorbed

to the polymer electrolyte (resin membrane) in an aqueous solution, and the adsorbed metal complex is reduced with a reducing agent -- where the adsorption/reducing cycles are repeated six or more times to provide sufficient amounts of metal on the polymer electrolyte.

The admitted state of the prior art teaches all the features of these claims except that a swelling step is performed before electroless plating using a permeation of a good solvent (or mixed solvent containing a good solvent) and/or salt (such as an aqueous solution with methanol and basic salt), where the swelling step makes the thickness of the polymer electrolyte at least 130% or more with respect to that of the polymer electrolyte in a dry state. However, Ventura provides that known solid polymer electrolytes can be made from polyesters or other resins (column 11, lines 25-30). Furthermore, Sopchak provides that before electrolessly plating resins such as polyesters it is desirable to condition the surfaces to improve adhesion of a metal coating deposited (column 2, lines 35-40), where the conditioning treatment involves exposing the article to a solvent system composition that comprises water (aqueous) and an organic solvent and solvated hydroxyl ions (column 2, lines 35-40), where the hydroxyl ions can be basic salts such as sodium hydroxide (column 4, lines 10-30), and the organic solvents are desirably solvents that swell the polymer (also showing that the solution composition will permeate the substrate), such as methanol (column 4, lines 50-65). The conditioning composition etches the surface and the amount of materials of solvents and hydroxyl ions should be optimized, as well as exposure time (column 5,

line 50 through column 6, line 15, column 5, lines 10-25, column 3, lines 50 through column 4, line 10). After the conditioning treatment, the surfaces can be electroless plated by conventional methods (column 9, lines 5-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the admitted state of the prior art to use a polyester as the polymer electrolyte as suggested by Ventura with an expectation of desirable actuator forming, as the admitted state of the prior art teaches to plate a polymer electrolyte to form an actuator, and Ventura teaches that a well known polymer electrolyte material is polyester; and furthermore, it would have been obvious to modify the admitted state of the prior art in view of Ventura to further use the pretreatment conditioning of Sopchak with an expectation of providing a desirably improved coating adherence, because the admitted state of the prior art teaches that it is desirable to provide a roughening pretreatment before the electroless plating, and Sopchak teaches that a desirable pretreatment (that would also provide roughening by way of etching) before electroless plating on polyester is using a solvent/hydroxyl ion composition, such as water/methanol/sodium hydroxide (basic salt), for example, that permeates and swells the polyester. As to the exact amount of swelling from the solvent/hydroxyl ion solution, it would have been obvious to one of ordinary skill in the art to perform routine experimentation to optimize the amount of swelling done with the solvent/hydroxyl ion solution for the specific substrate used, as Sopchak teaches the desire for the organic solvent to be such as to swell the substrate and to optimize time of

exposure and amount of solvent used for the particular application used, which will, when optimized, provide an optimized swelling, since the substrate used, solvent, amount of solvent used, and time of exposure will control the resulting swelling. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 4, 13: Since the admitted state of the prior art in view of Ventura and Sopchak provide treating a polymer electrolyte with methanol, the same solvent used by applicant, the Examiner understands that the methanol use described would inherently provide reducing the degree of crystallization as claimed. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Claims 6, 14, 16-19: the admitted state of the prior art provides that the polymer electrolyte would be an ion exchange resin (page 2 of the specification).

10. Claims 1-8, 13, 14 and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art in view of Ventura et al (US 5731104) and Lin (US 3650803).

Claims 1-3, 5, 7, 8, 20- 23: The admitted state of the prior art, at pages 2-4 of the specification, provides that it is well known to provide an actuator made of a laminate composed of a polymer electrolyte and metal electrodes bonded to the surface of the polymer electrolyte. To provide the metal electrodes, it is known to electrolessly plate the metal on the polymer electrolyte, including using a process to surface roughen the polymer electrolyte, then immerse in water to swell, then a metal complex is adsorbed to the polymer electrolyte (resin membrane) in an aqueous solution, and the adsorbed metal complex is reduced with a reducing agent -- where the adsorption/reducing cycles are repeated six or more times to provide sufficient amounts of metal on the polymer electrolyte.

The admitted state of the prior art teaches all the features of these claims except that a swelling step is performed before electroless plating using a permeation of a good solvent (or mixed solvent containing a good solvent) and/or salt (such as a solution with methanol and basic salt), where the swelling step makes the thickness of the polymer electrolyte at least 130% or more with respect to that of the polymer electrolyte in a dry state. However, Ventura provides that known solid polymer electrolytes can be made from polyesters or other resins (column 11, lines 25-30). Furthermore, Lin provides that before electrolessly plating resins (including polyesters and a wide variety of other resins) it is desirable to condition the surface to activate the surface to allow adherent electroless plating by depositing a phosphorus coating and reacting to form a metal phosphorus coating (column 1, line 30, through column 2, line 50), the depositing

of the phosphorus coating is provided by using phosphorus in combination with solvent that permeates and swells the substrate (such as methanol) (column 4, lines 20-55) and with a hydroxide reactant (such as sodium hydroxide, a basic salt) (abstract, column 7, lines 65 through column 8, line 15, for example). The contact time with the substrate varies depending on the nature of the substrate, the solvent, and the temperature and can be 1 second to 1 hour or more (column 5, lines 20-30). A further treatment with a solution of salt and water (aqueous) and swelling solvent (such as methyl alcohol or methanol) contacts (permeates) the substrate to react with the applied phosphorus to form a metal-phosphorus coating, with the contact time of this solution dependent on the nature of the substrate, the salts used and the temperature and can be 1 to 30 minutes (column 5, lines 40-45 and column 6, lines 10-55). After the treating with the phosphorus compound and reacting, electroless plating can take place (column 8, lines 40-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the admitted state of the prior art to use a polyester as the polymer electrolyte as suggested by Ventura with an expectation of desirable actuator forming, as the admitted state of the prior art teaches to plate a polymer electrolyte to form an actuator, and Ventura teaches that a well known polymer electrolyte material is polyester; and furthermore, it would have been obvious to modify the admitted state of the prior art in view of Ventura to further use the pretreatment conditioning of Lin with an expectation of providing a desirably adhered coating, because the admitted state of the prior art teaches that it is desirable to provide

a roughening pretreatment before the electroless plating, and Lin teaches that a desirable pretreatment before electroless plating on polyester is using a phosphorus/solvent/hydroxude composition, such as phosphorus/methanol/sodium hydroxide (basic salt), for example, that permeates and swells the polyester and also a further use of an aqueous salt/water/methanol (for example) solution that would also permeate and swell the polymer due to the presence of methanol. As to the exact amount of swelling from the solvent/hydroxyl ion solution or salt/water/methanol solution, it would have been obvious to one of ordinary skill in the art to perform routine experimentation to optimize the amount of swelling done with the phosphorus/solvent/hydroxide solution or salt/water/methanol solution for the specific substrate used, as Lin teaches the desire for the organic solvent to be such as to swell the substrate and to optimize time of exposure of solvent used for the particular application used, which will, when optimized, provide an optimized swelling, since the substrate used, solvent, amount of solvent used, and time of exposure will control the resulting swelling. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 4, 13: Since the admitted state of the prior art in view of Ventura and Lin provide treating a polymer electrolyte with methanol, the same solvent used by applicant, the Examiner understands that the methanol use described would inherently provide reducing the degree of crystallization as claimed. Where the claimed and prior

art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Claims 6, 14, 16-19: the admitted state of the prior art provides that the polymer electrolyte would be an ion exchange resin (page 2 of the specification).

Response to Arguments

11. Applicant's arguments filed August 3, 2010 have been fully considered but they are not persuasive.

(A) As to the rejection using Fedkiw as the primary reference, applicant argues that Fedkiw is directed to a two step adsorption/reduction process, and does not suggest a method that includes a pretreatment swelling before electroless plating, and the initial adsorption step (impregnation with ionic salts) is part of the plating process, and modifying the process to provide multiple adsorption and reduction steps would not result in a method that reads on the claimed method, because the adsorption step would still be part of the plating process. Applicant further argues that it has been found that a laminate with the pretreatment swelling step has a larger electrical capacity that one without the pretreatment step, with the Examples proving that swelling the polymer electrolyte before plating creates laminates having improved electrical characteristics, with Fedkiw also failing to teach or suggest the claimed degree

of swelling, and while the Office Action asserts that one skilled in the art would find it obvious to perform routine experimentation to optimize the amount of swelling, applicant disagrees, citing a NAFION 117 data sheet that shows swelling of 10 and 14 percent when soaked with water, indicating that the considerably higher degree of swelling achieved through the present invention constitutes more than just a routine adjustment of what is known in the art.

The Examiner has reviewed these arguments, however, the rejection is maintained. Claim 1, for example, provides "the method for electroless plating contains a pre-treatment step that occurs prior to applying electroless plating to the polymer electrolyte". This means that the pre-treatment step must occur before an electroless plating occurs, but does not require the pre-treatment step to occur before "any" electroless plating. There is no limitation that only one electroless plating can be provided, either. Therefore, as worded, an electroless plating can occur, then the "pre-treatment" step can occur (and there is nothing to prevent the pretreatment step from applying a plating by an electroless process), then another electroless plating can occur. Therefore, when multiple electroless platings occur, as by the suggested multiple "adsorption/reduction" steps (from the combination of Fedkiw with the admitted state of the prior art), a first or even second "adsorption" step can be considered a "pre-treatment" and later "adsorption/reduction" steps can be considered the claimed later "electroless plating". As to applicant's argued benefits, no showing has been made as to specific criticality of benefits in the range of swelling of 130% and up, and applicant's

Comparative Example, in the specification, uses an aqueous solution, not a solution using methanol (as specifically provided for by Fedkiw). Furthermore, Fedkiw indicates to use the same material (NAFION) and same solvent (methanol) as described by applicant as achieving the desired swelling, and therefore similar amounts of swelling would be expected. Furthermore, Fedkiw indicates that swelling is to increase the loading level, and solution concentration and time of immersion are to be controlled to achieve desired loading, indicating that swelling would be a result effective variable to be controlled to optimize loading. Applicant's argument that the Dupont NAFION document would indicate that swelling of 130 % would be higher than that expected by the art is not agreed with by the Examiner. The NAFION document indicates swelling amounts from water, not swelling using methanol/water as described by Fedkiw.

(B) New further rejections using the admitted state of the prior art as the primary reference (further using Ventura and EITHER Sopchak OR Lin) have also been provided as to the suggestion to swell the polymer electrolyte before any electroless plating steps. The Examiner notes again that no showing of criticality of using a swelling of 130% or greater has been made.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/
Primary Examiner, Art Unit 1715